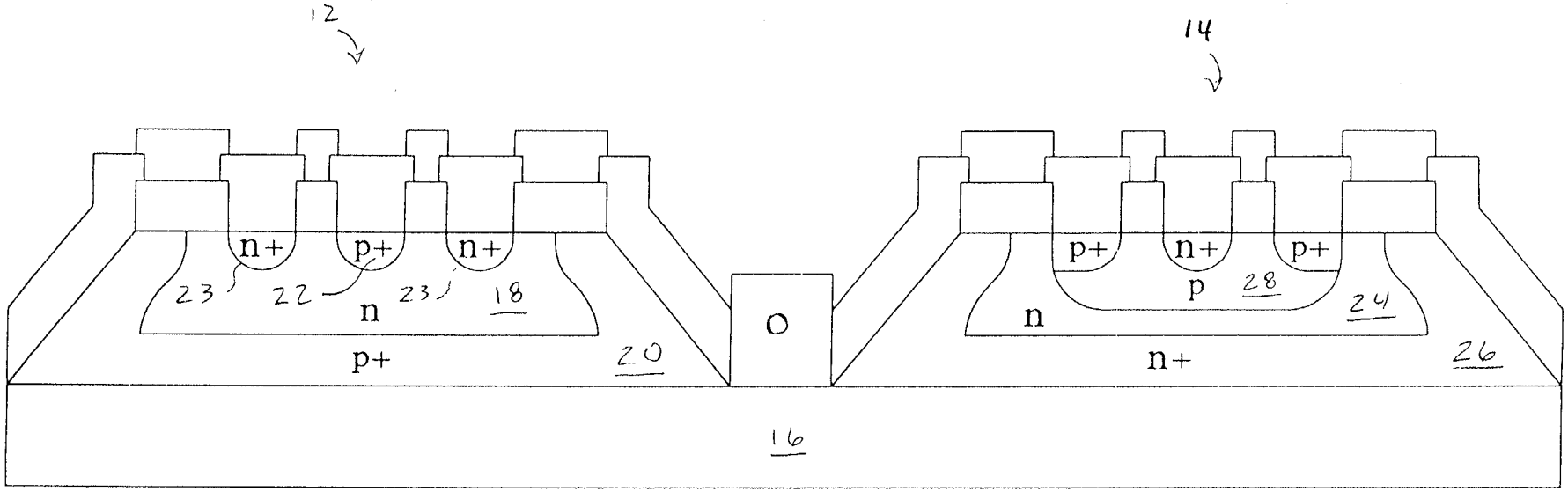

FIG. 1A

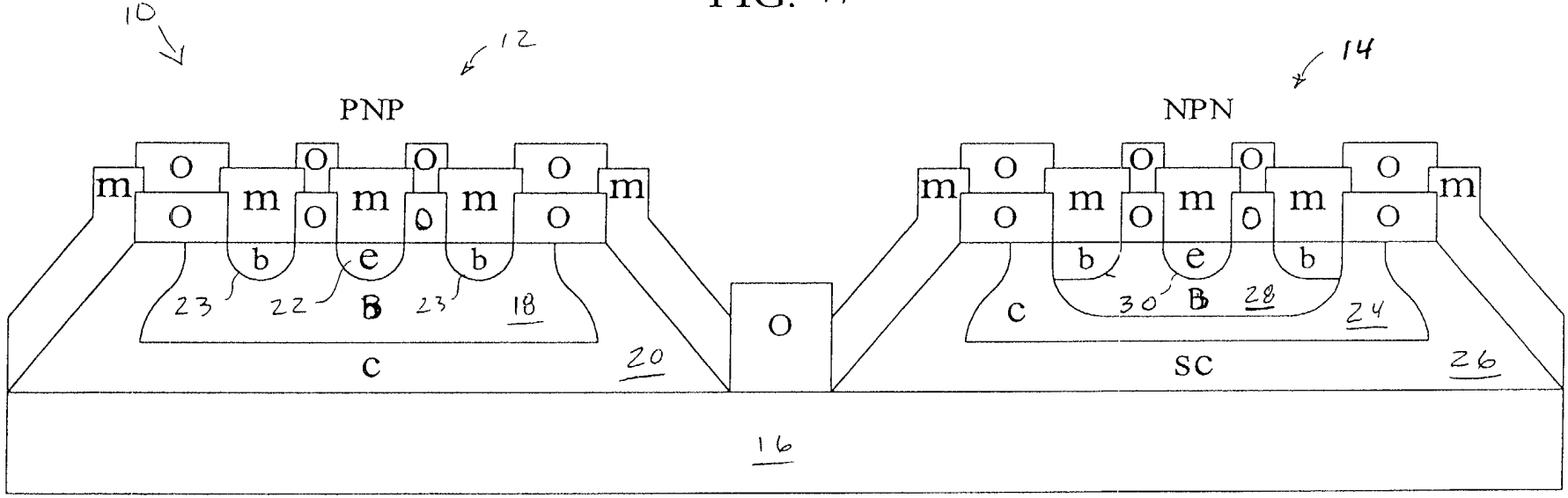

FIG. 1B

KEY: m = metal o = oxide
e = emitter

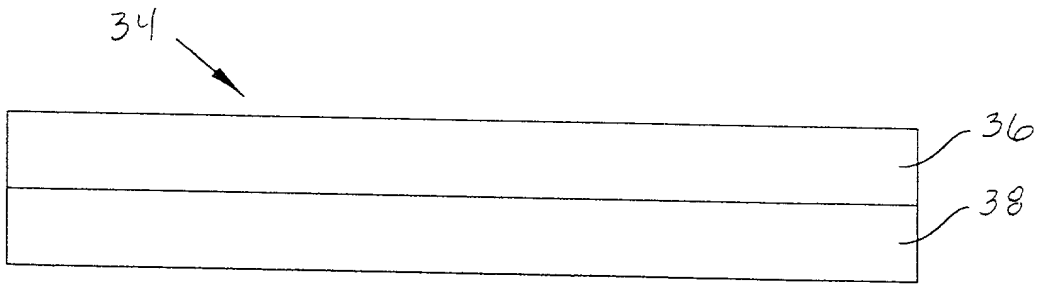

FIG. 2

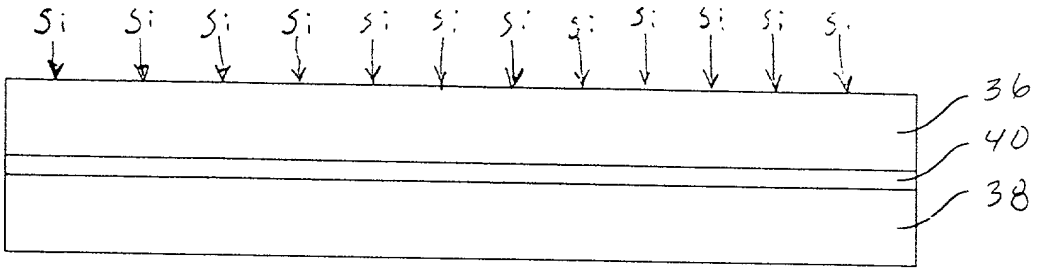

FIG. 3

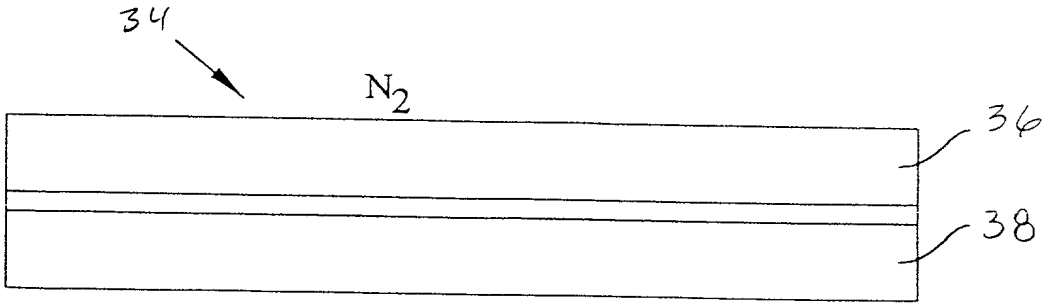

FIG. 4

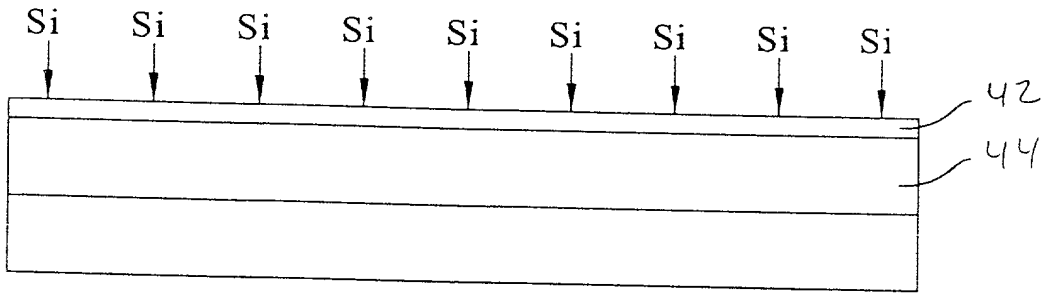

FIG. 5

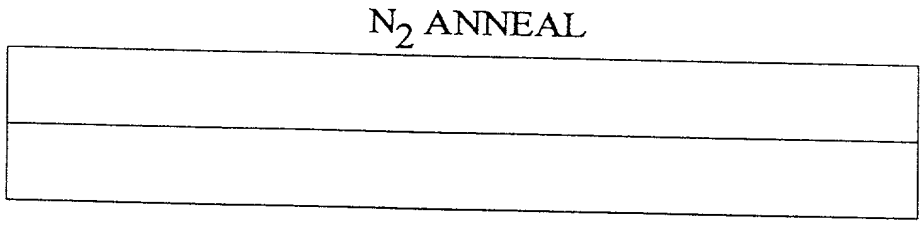

FIG. 6

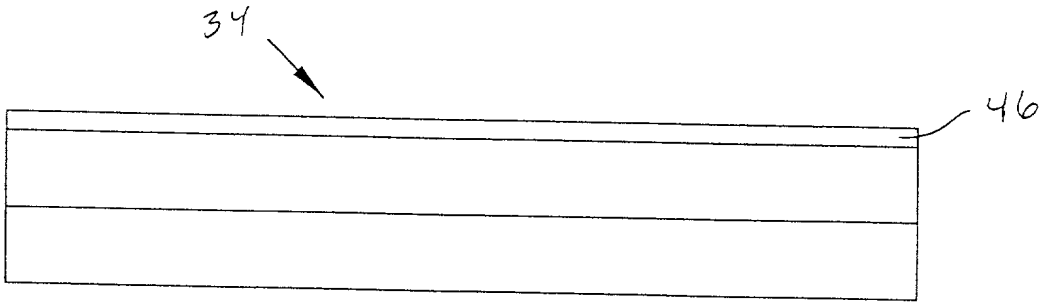

FIG. 7

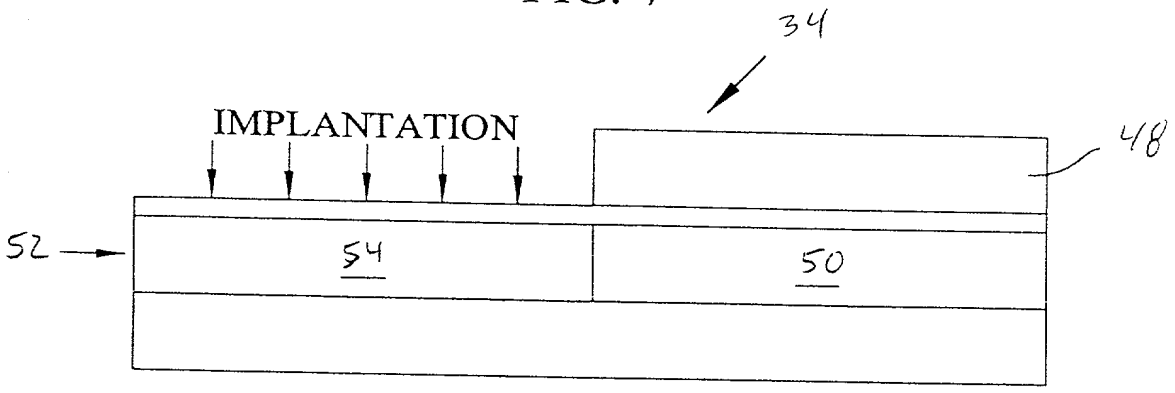

FIG. 8

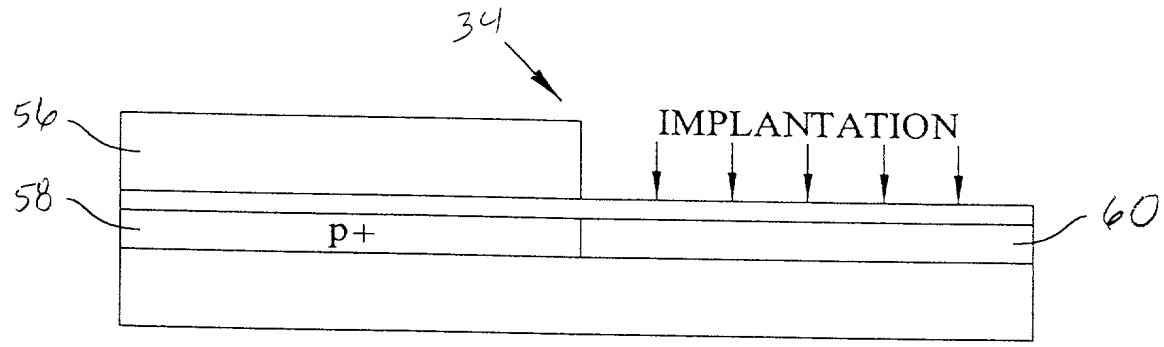

FIG. 9

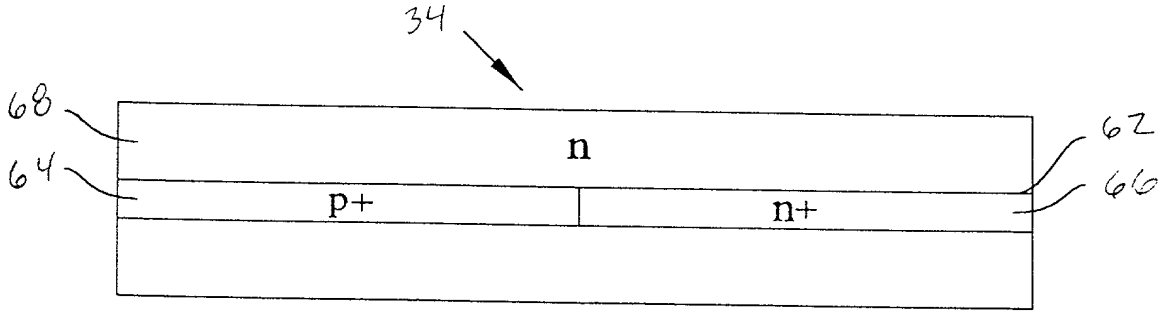

FIG. 10

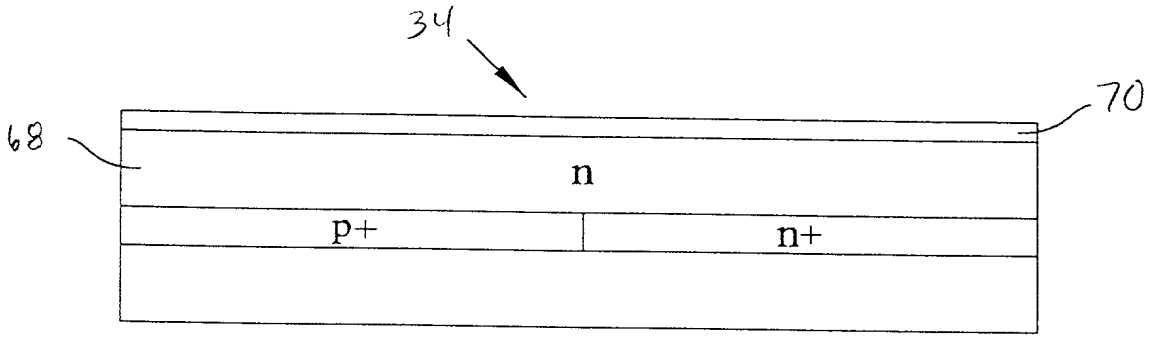

FIG. 11

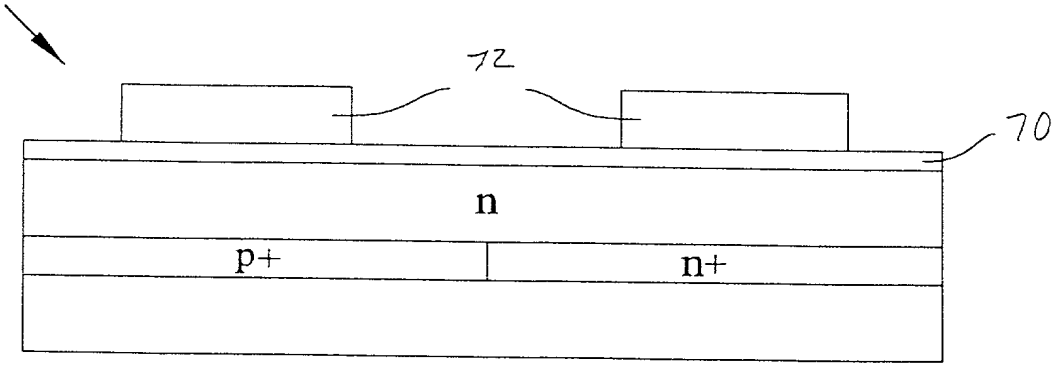

FIG. 12

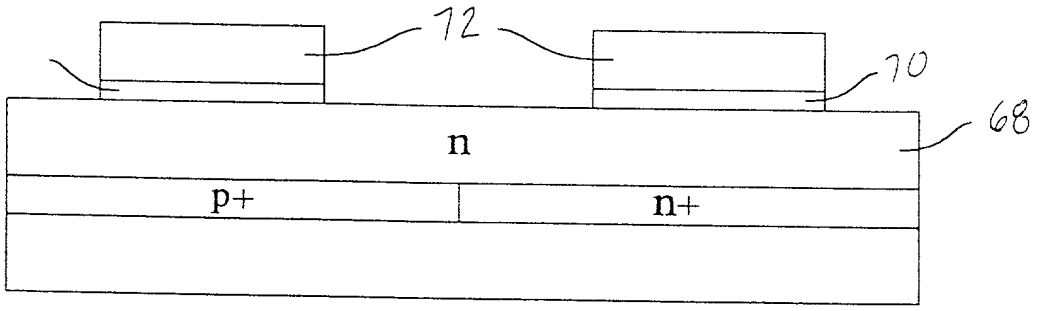

FIG. 13

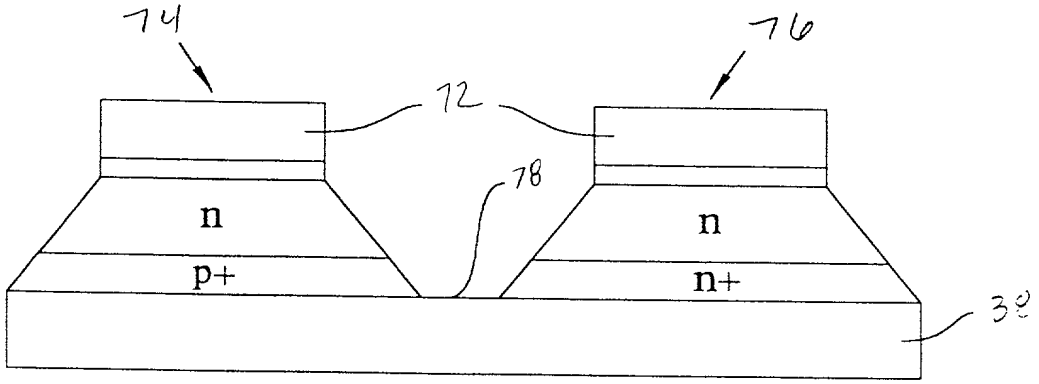

FIG. 14

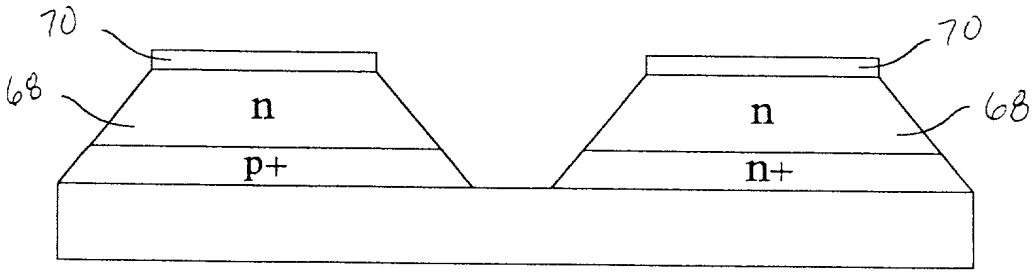

FIG. 15

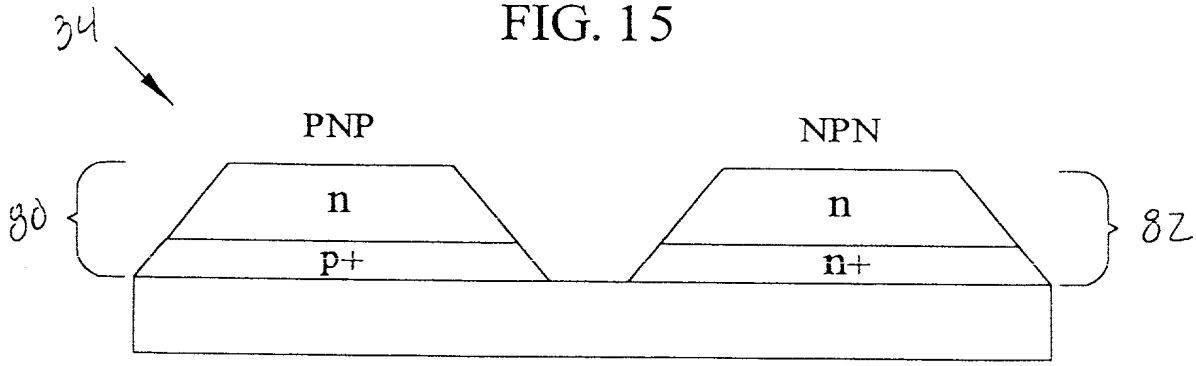

FIG. 16

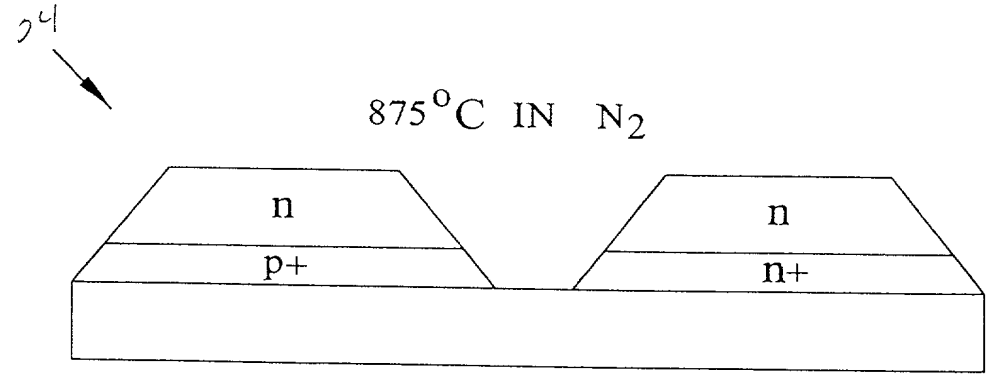

FIG. 17

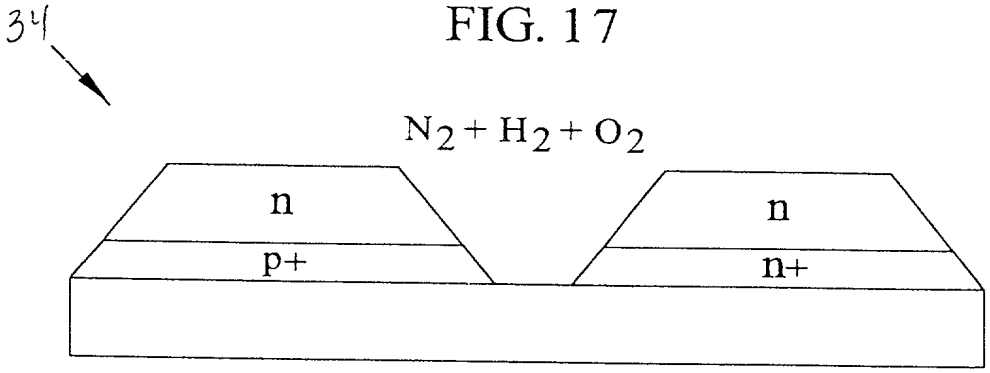

FIG. 18

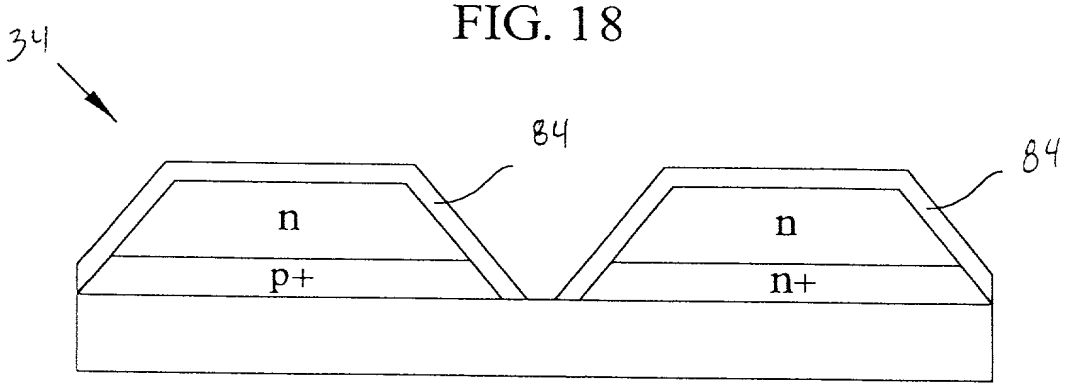

FIG. 19

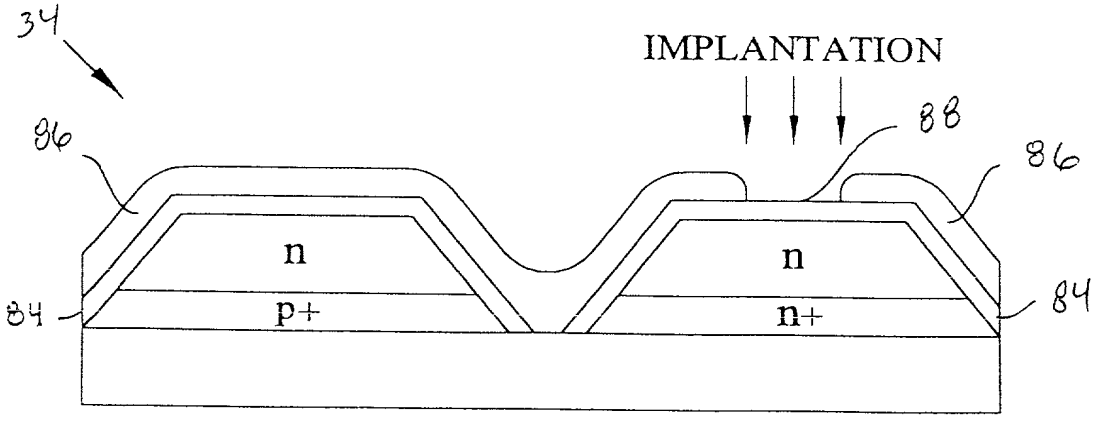

FIG. 20

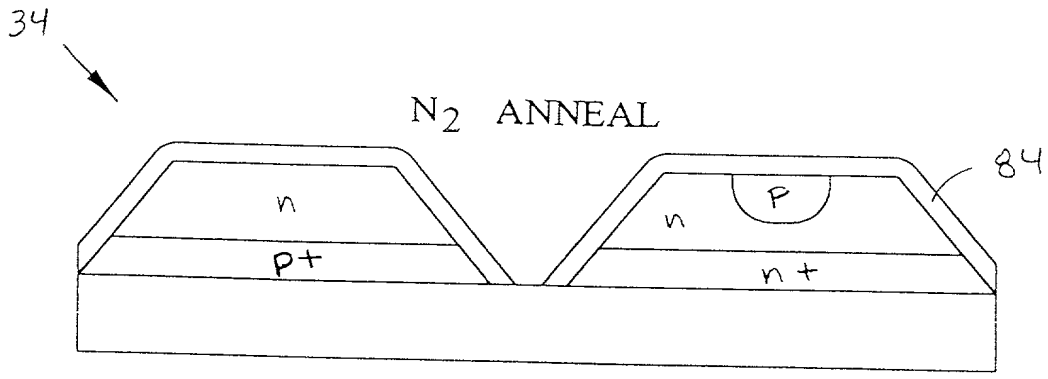

FIG. 21

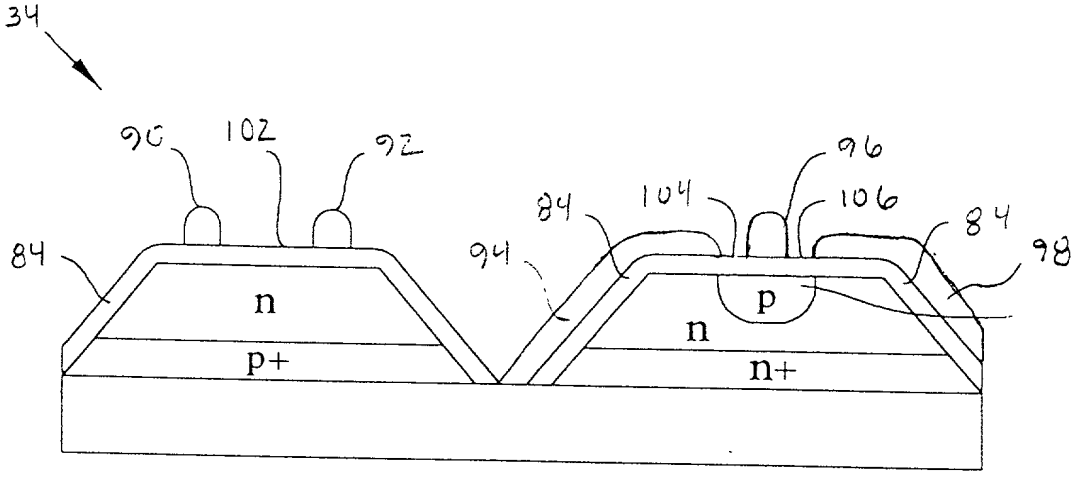

FIG. 22

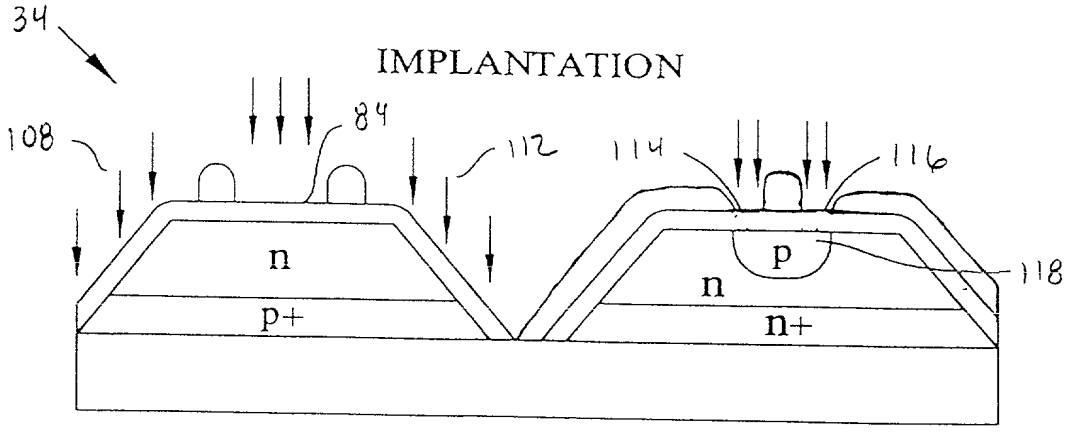

FIG. 23

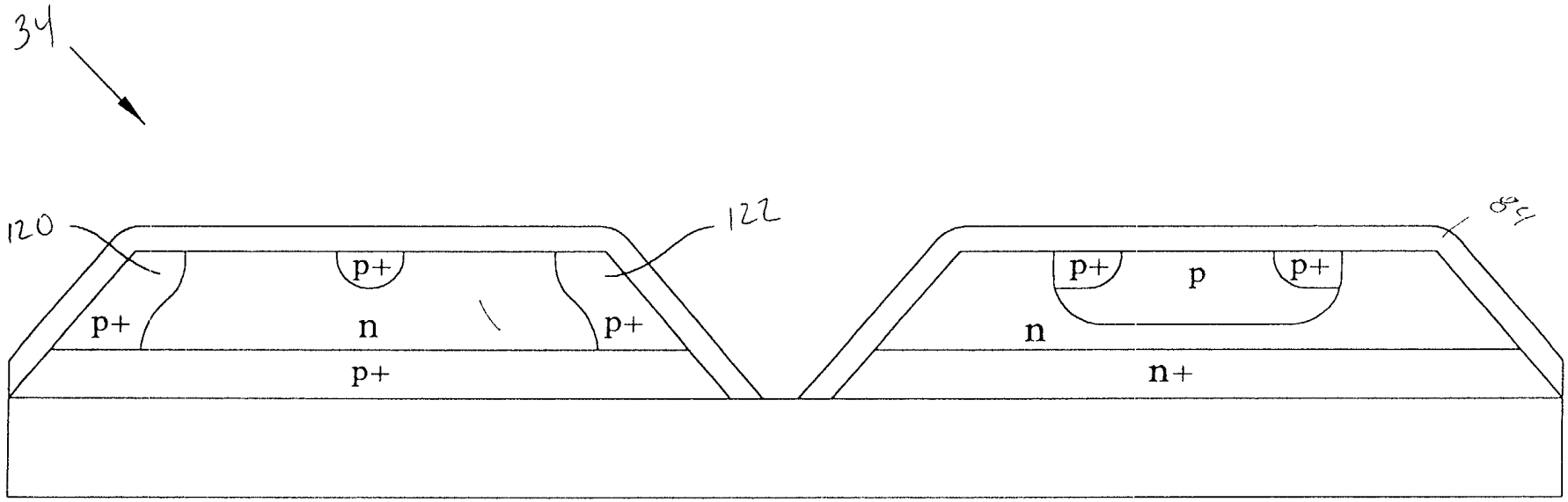

FIG. 24

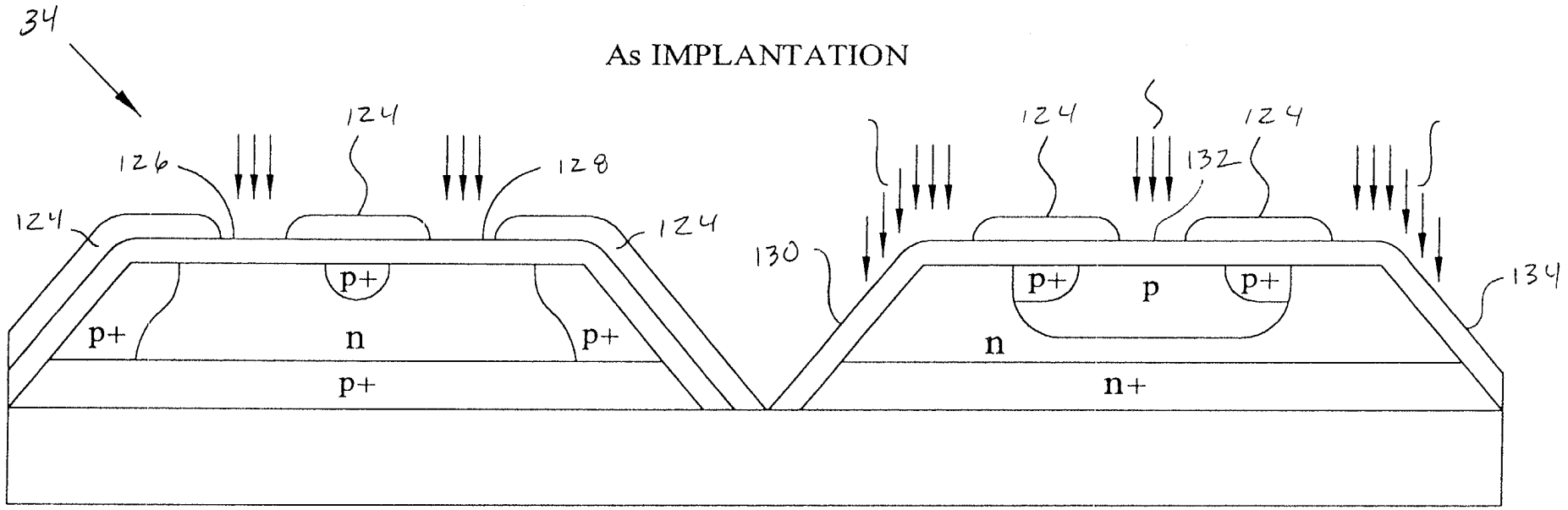
34
As IMPLANTATION
124
126
128
124
124
124
132
124
130
134
p+
p+
n
p+
p+
p
p+
n
p+
n+

FIG. 25

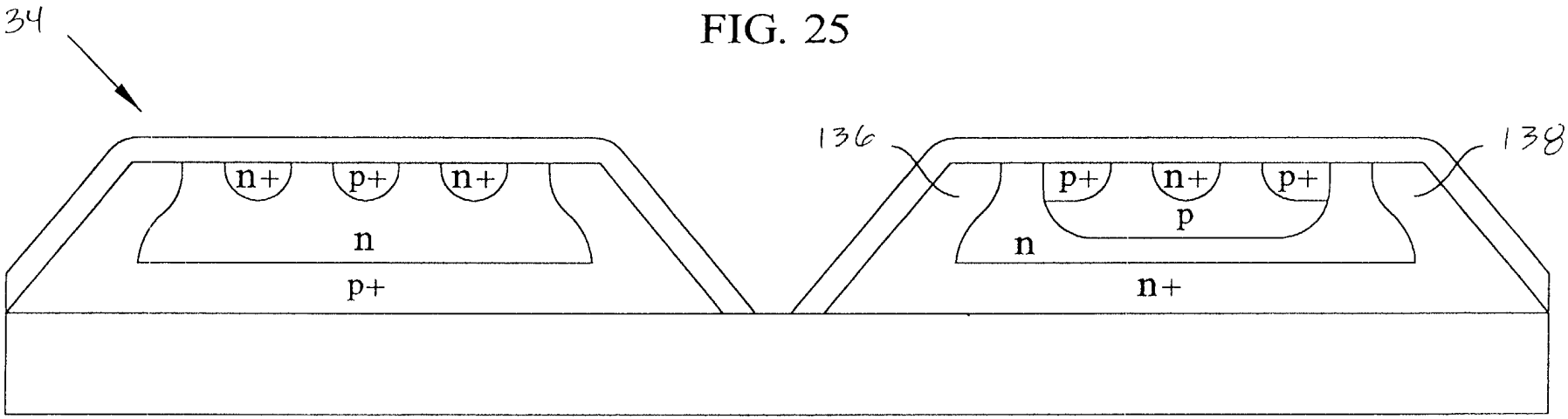
34
136
138
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 26

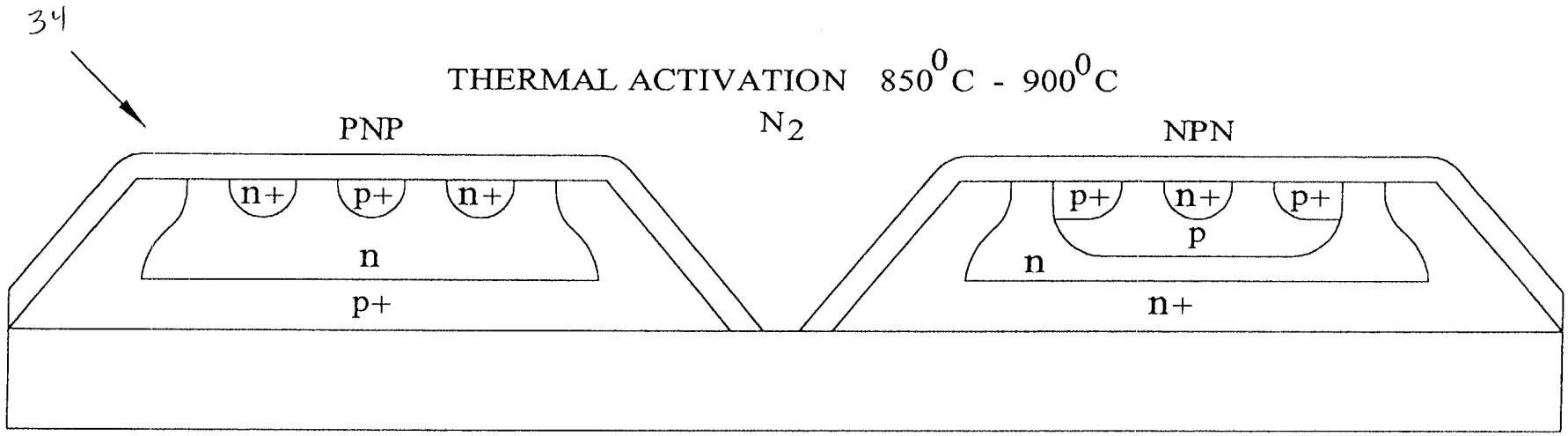
34
THERMAL ACTIVATION 850°C - 900°C
N2
PNP
NPN
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 27

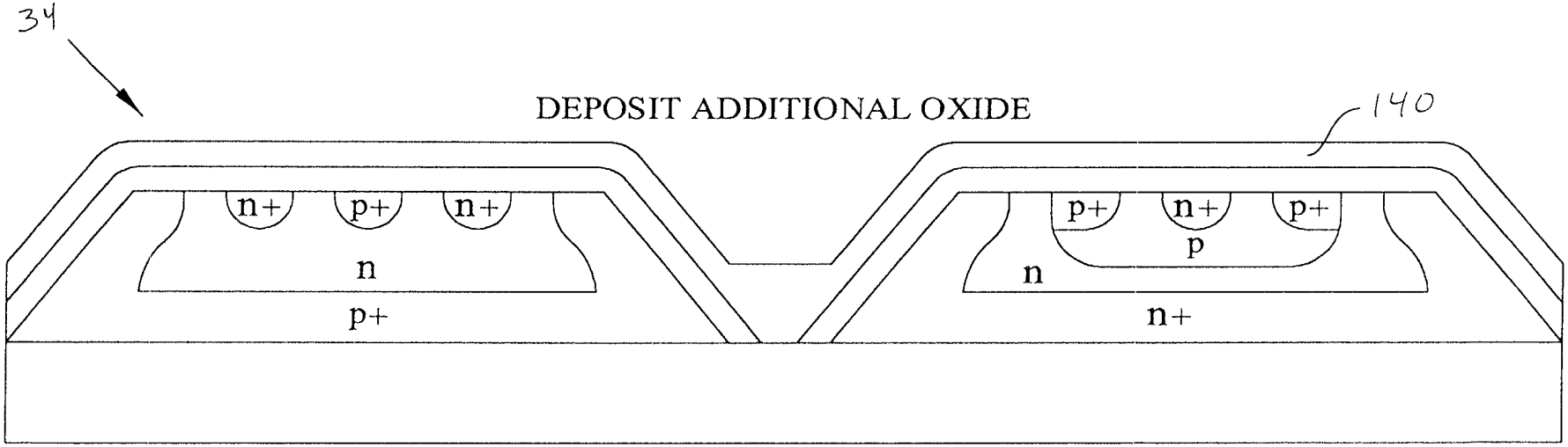
34
DEPOSIT ADDITIONAL OXIDE
140
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 28

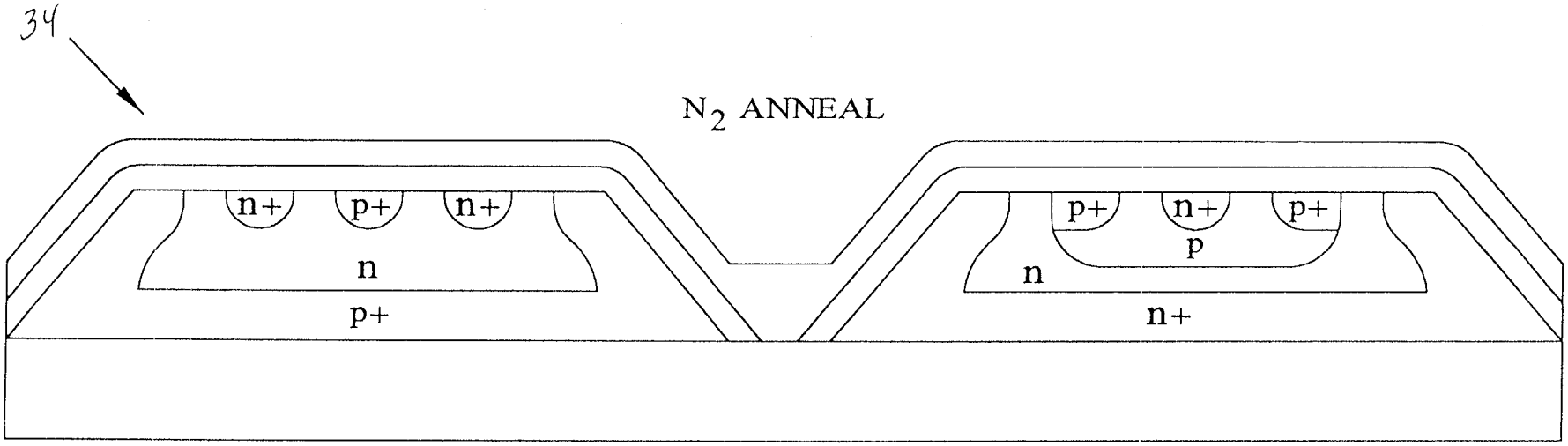
34
N_2 ANNEAL
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 29

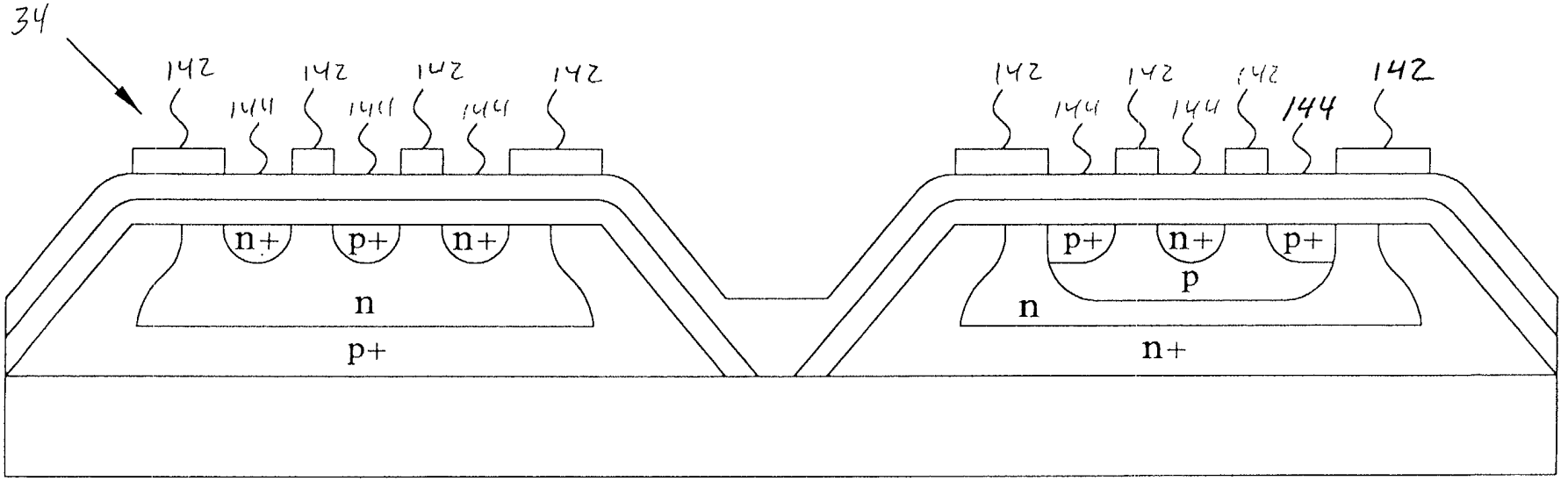
34
142
144
142
144
142
144
142
142
144
142
144
142
144
142
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 30

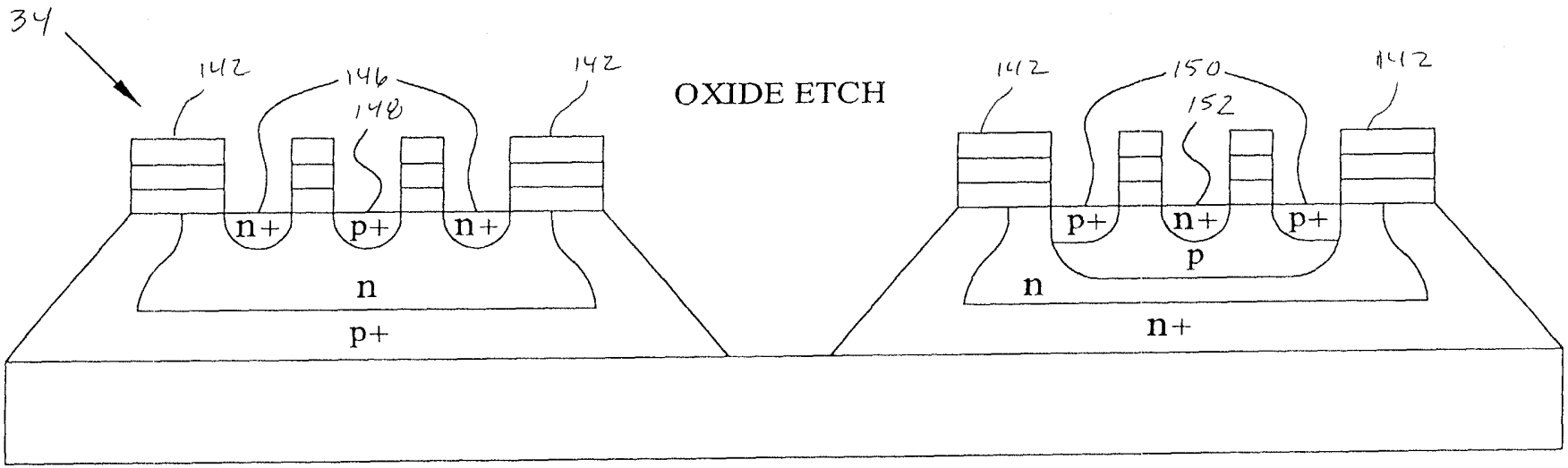

FIG. 31

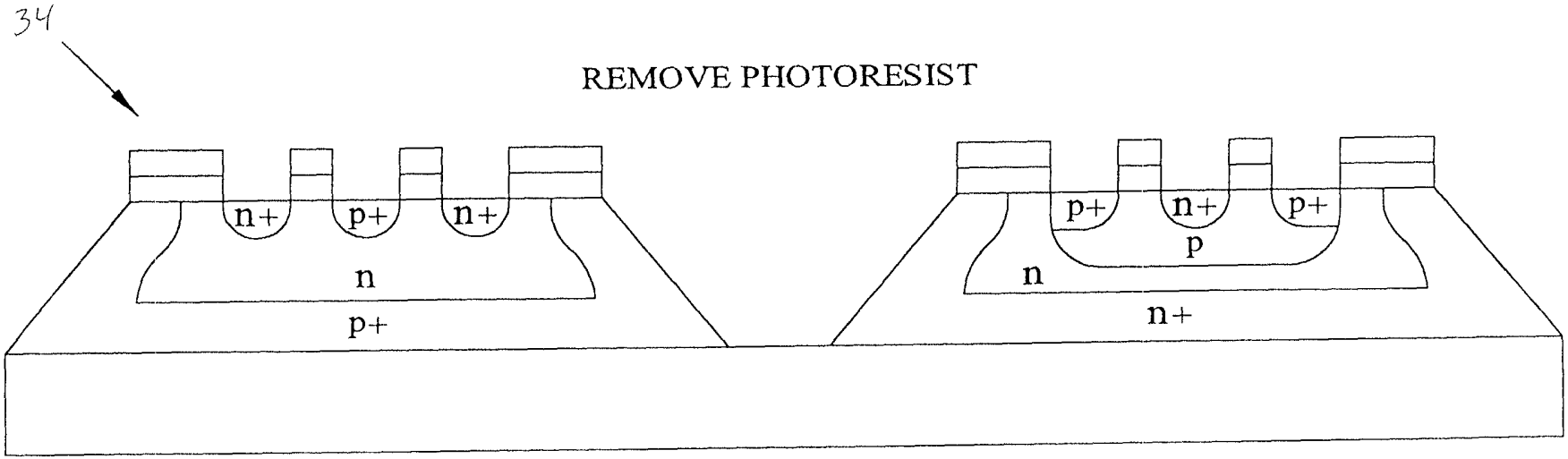

FIG. 32

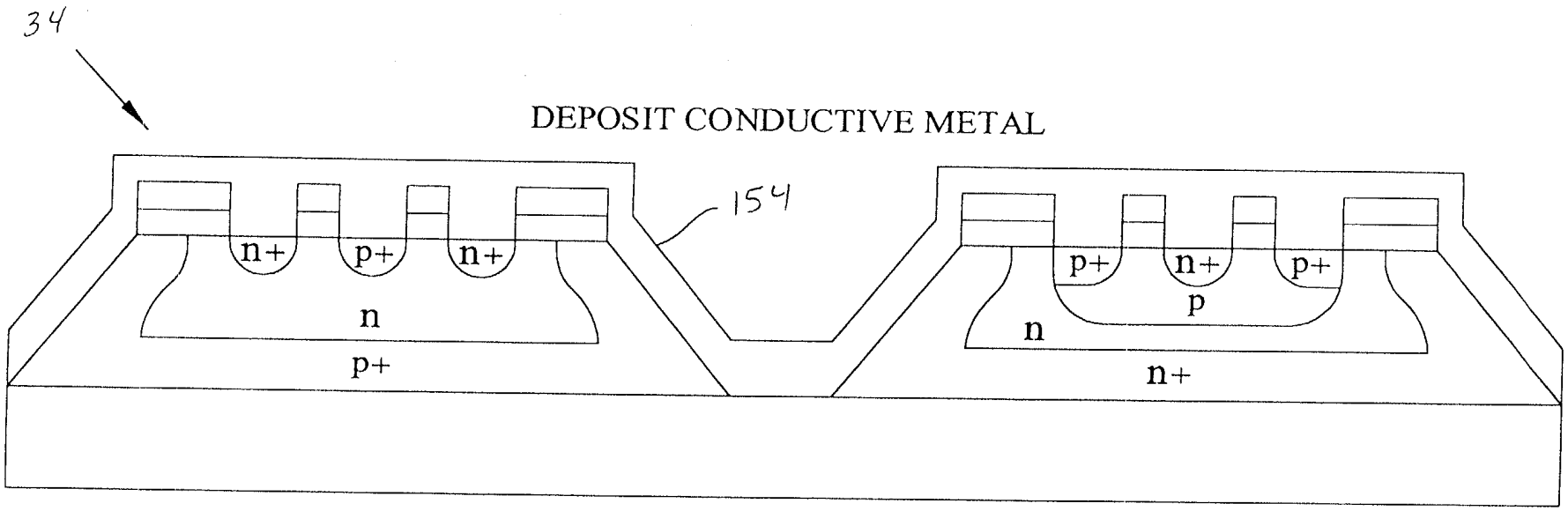
34
DEPOSIT CONDUCTIVE METAL
154
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 33

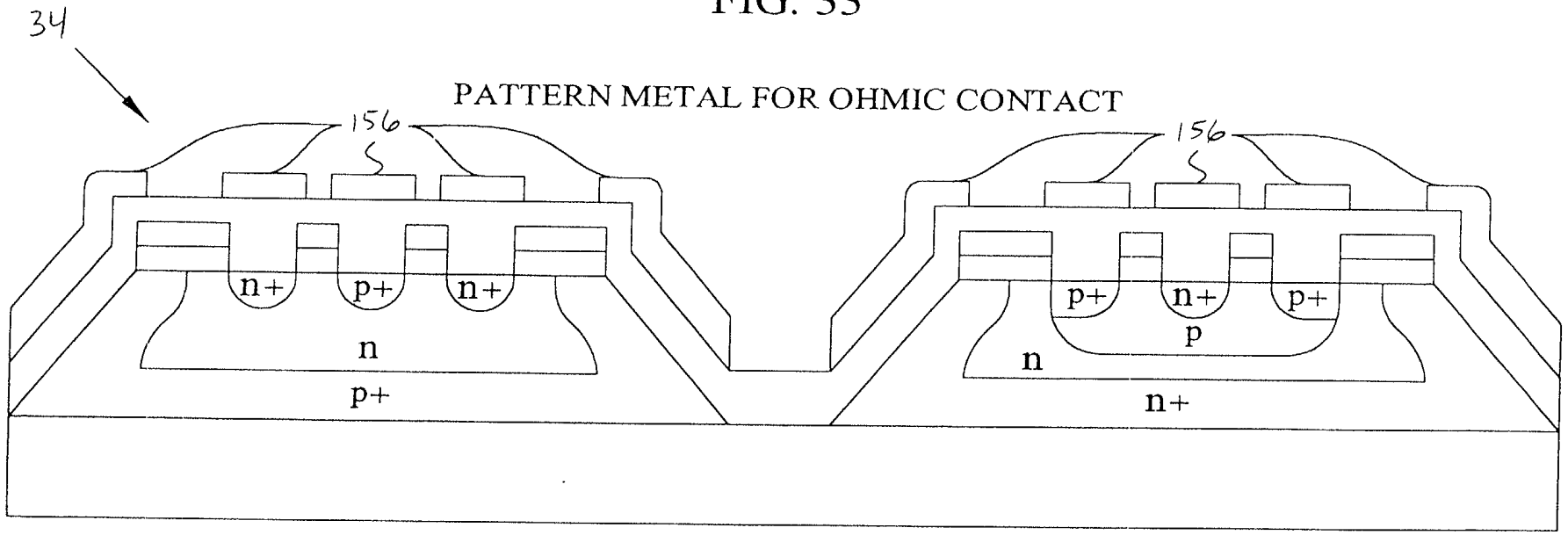
34
PATTERN METAL FOR OHMIC CONTACT
156
156
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 34

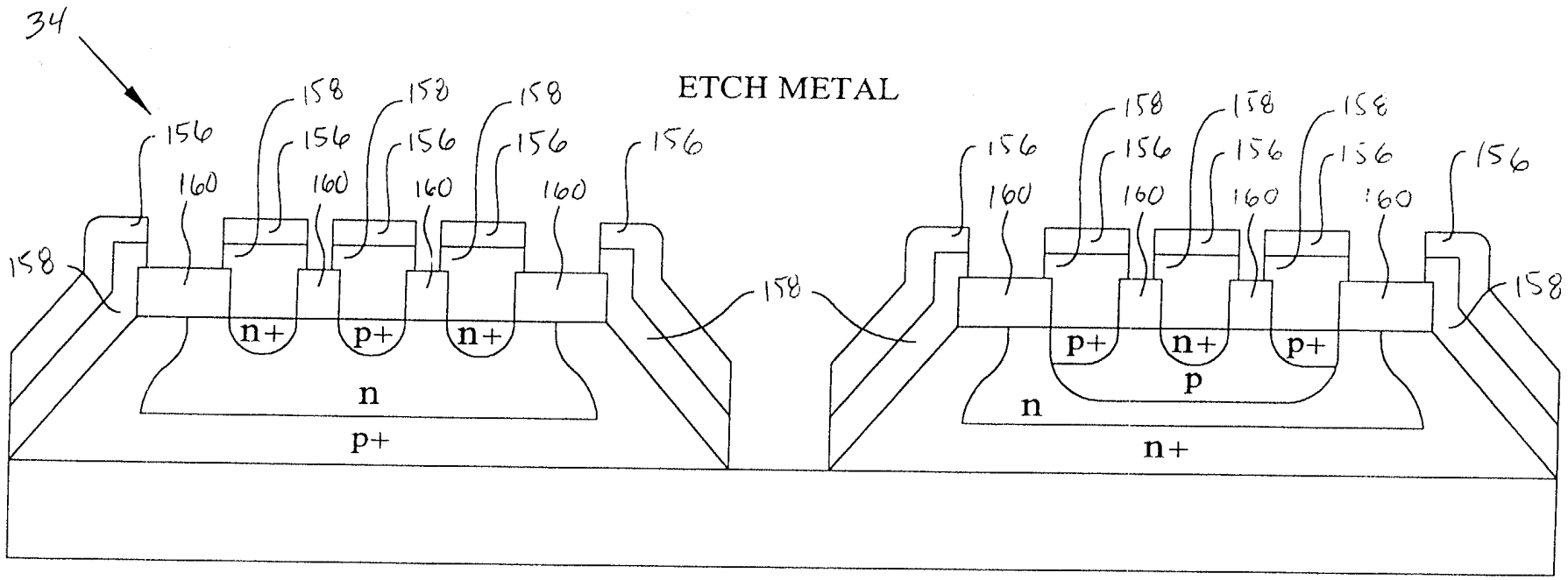
34
ETCH METAL
156
158
160
n+
p+
n
p+
p
n+

FIG. 35

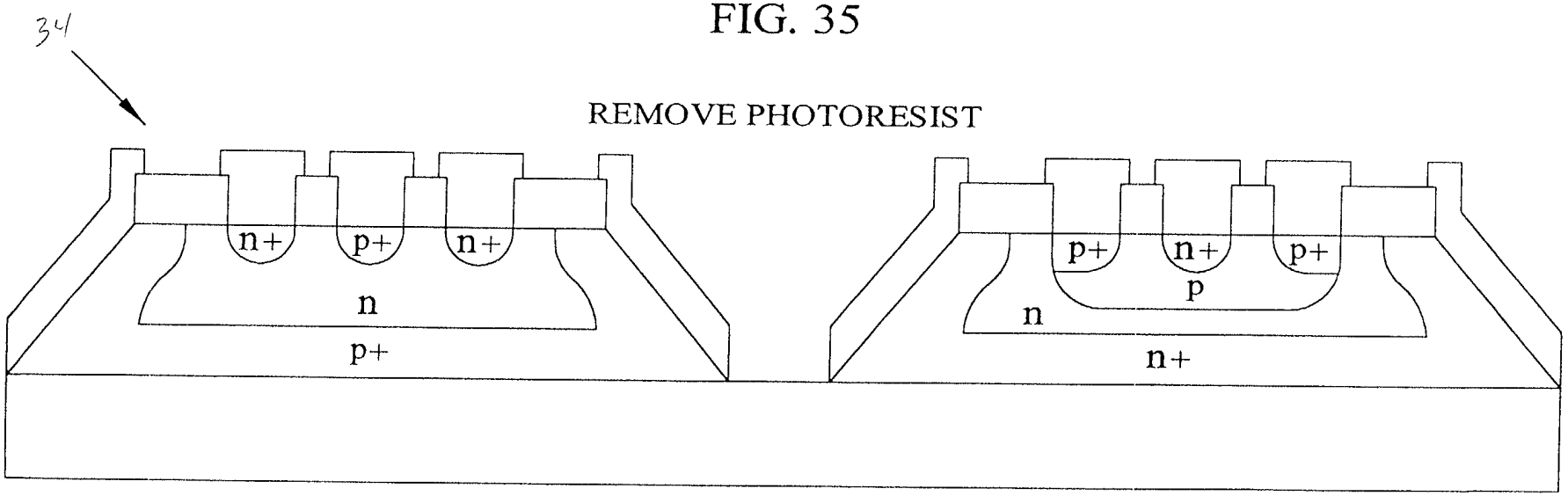
34
REMOVE PHOTORESIST
n+
p+
n
p+
p
n+

FIG. 36

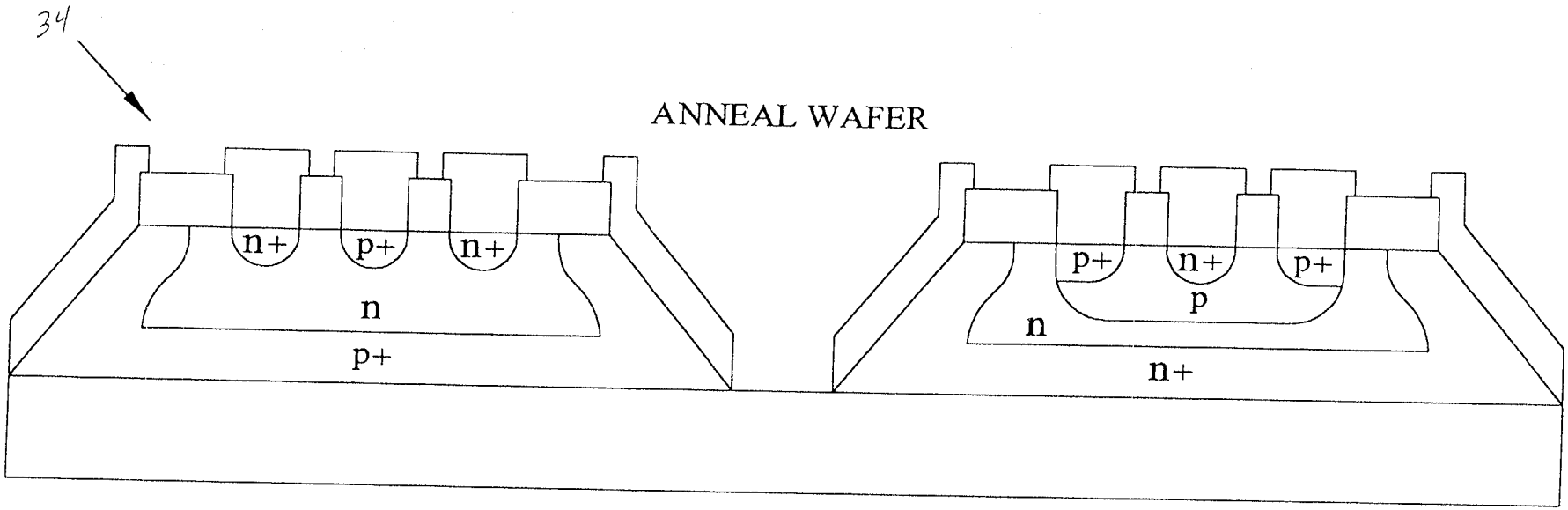

FIG. 37

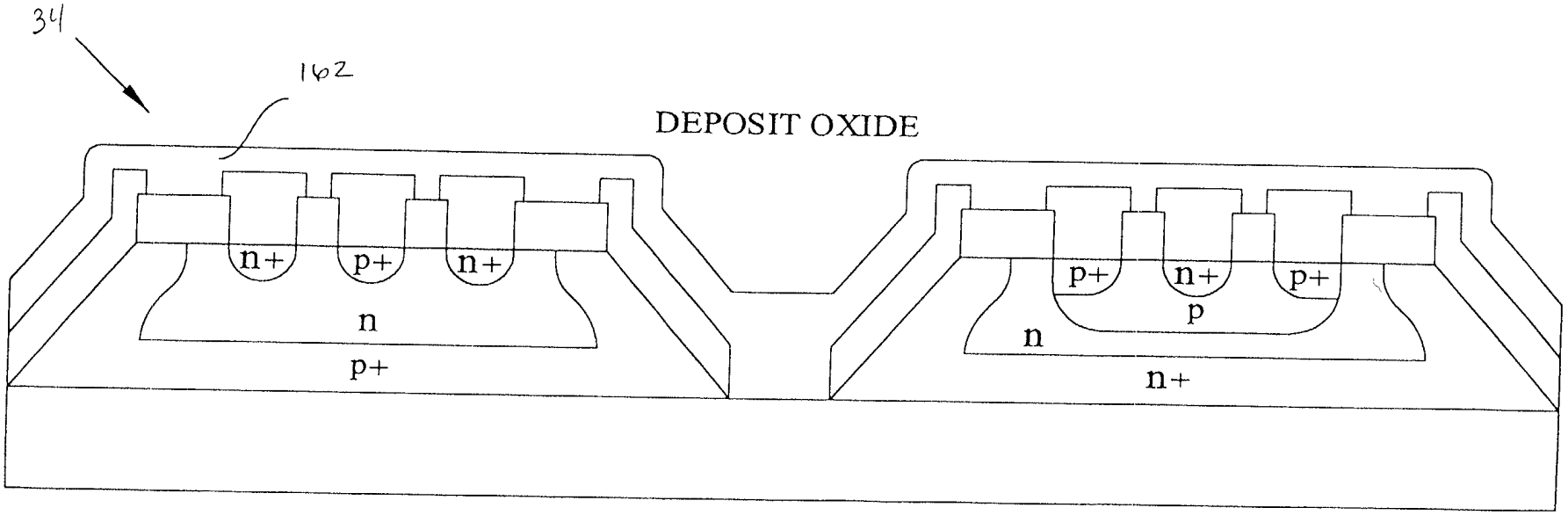

FIG. 38

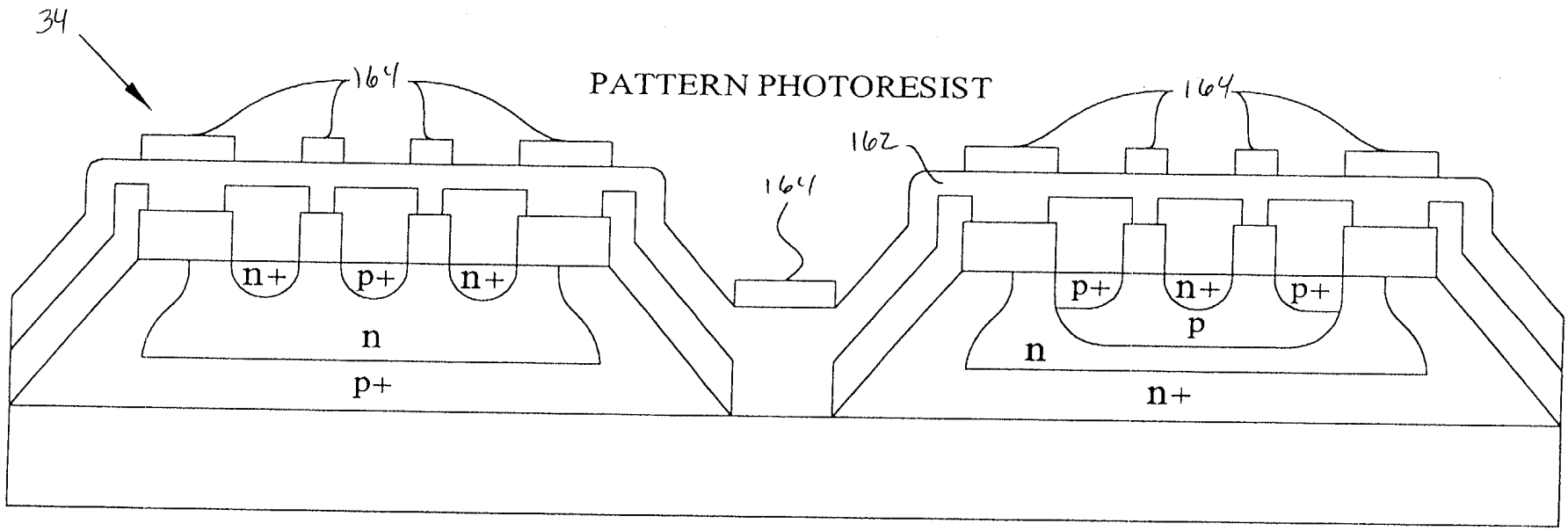
34
164
PATTERN PHOTORESIST
164
162
164
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 39

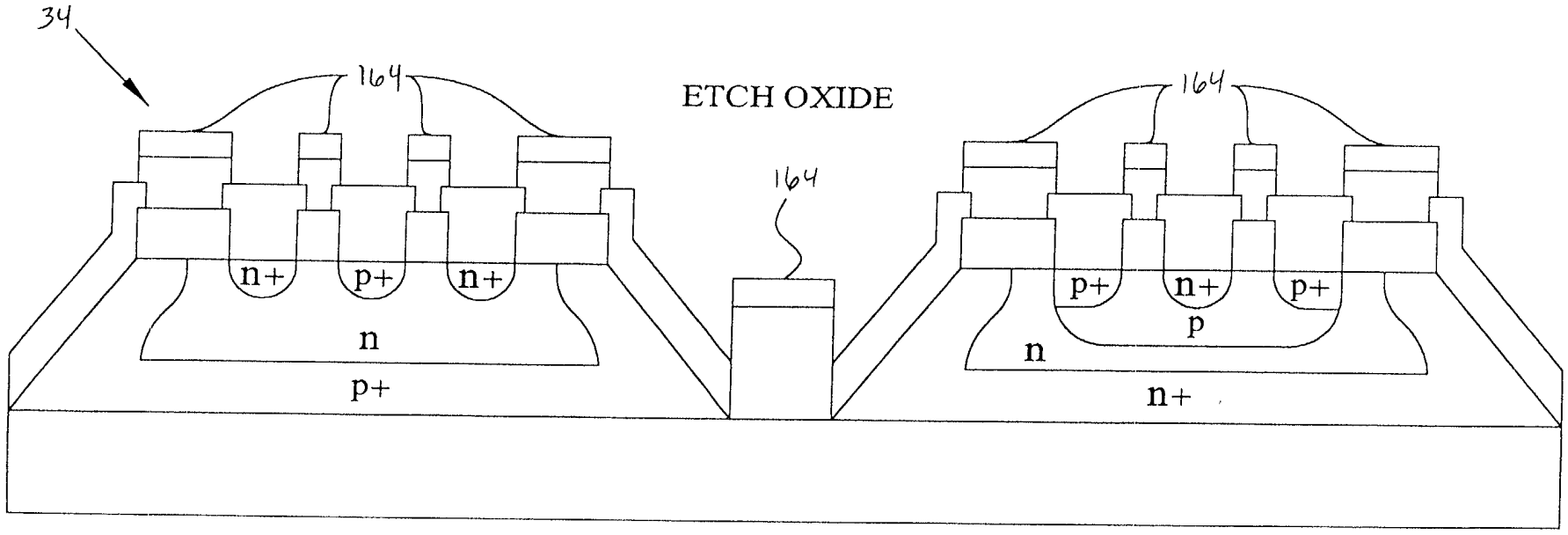
34
164
ETCH OXIDE
164
164
n+
p+
n+
n
p+
p+
n+
p+
p
n
n+

FIG. 40

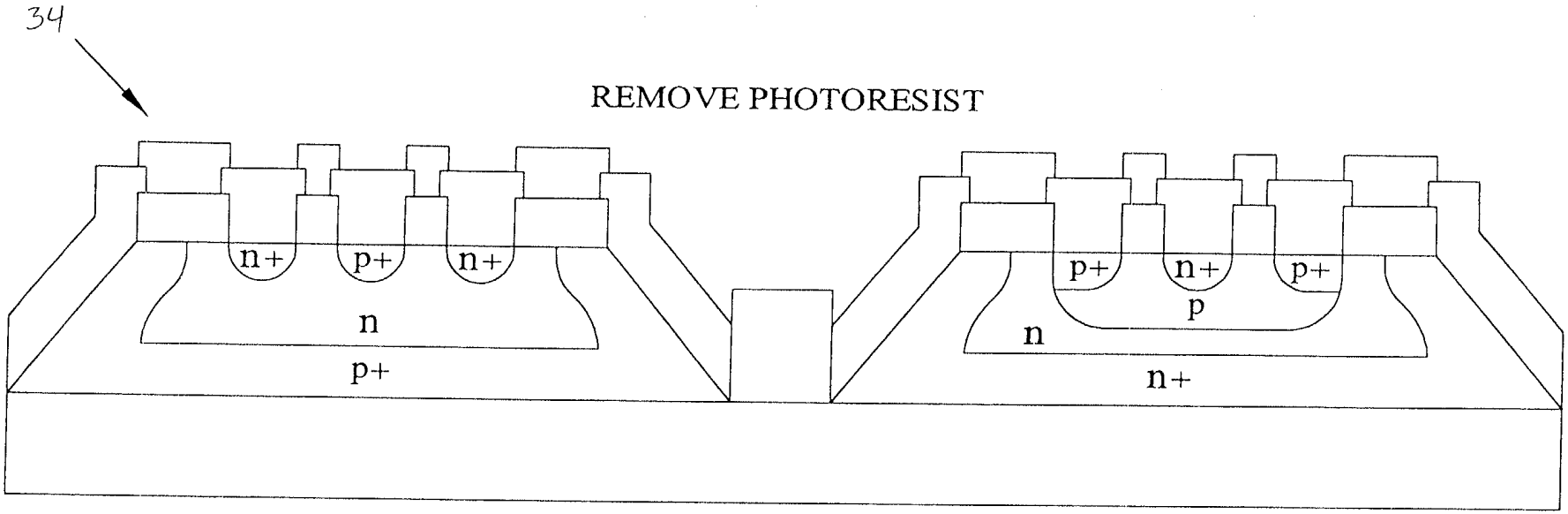

FIG. 41

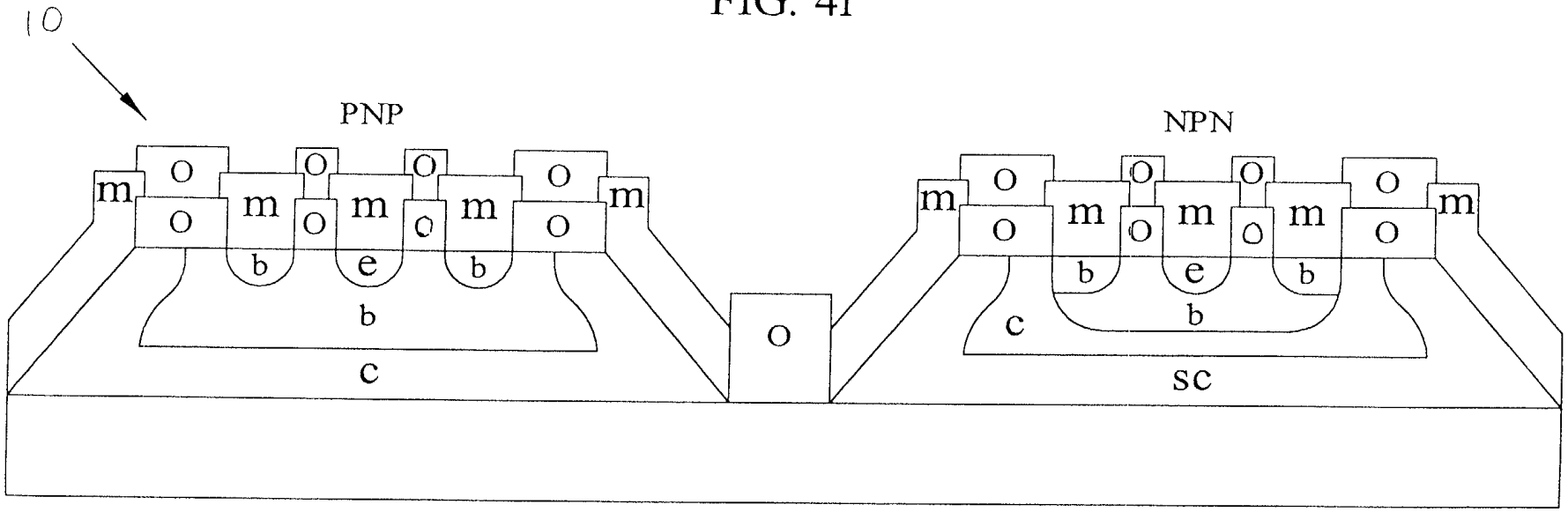

FIG. 42

KEY: m = metal o = oxide
e = emitter